FINAL TECHNICAL REPORT

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Entitled

DETAILED AND REDUCED HYDROCARBON OXIDATION CHEMISTRY

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NASA Lewis Research Center
Cleveland, Ohio 44135

by

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The work done under this grant from NASA Lewis began in November, 1991, and was completed in December, 1996. The grant was used to support the research performed by Soon Muk Hwang, a Research Associate at the University of Toledo. Dr. Hwang was on-site at NASA Lewis where the work was performed. Two University of Toledo Graduate Students, 1 Ph.D. and 1 M.S. student, participated in the research along with the principal investigator.

The publications and presentations listed below constitutes the final report for this grant. All of these publications are available in the open literature, and all have previously been submitted to the grant technical monitor.

[1] "Determination of the Rate Coefficients of $H + O_2 = OH + O$ and $O + H_2 = OH + H$ Reactions by Shock Tube-Laser Absorption Spectroscopy", by Si-Ok Ryu, Ph.D. Dissertation, The University of Toledo, Toledo, Ohio, March, 1995.

[2] "High Temperature Kinetic Study of the Reactions $H + O_2 = OH + O$ and $O + H_2 = OH + H$ in H_2/O_2 System by Shock Tube - Laser Absorption Spectroscopy", NASA Contractor Report 195473, 5/95, by S. Ryu, S. M. Hwang, and K. J. DeWitt.

[3] "Shock Tube and Modeling Study of the $H + O_2 = OH + O$ Reaction Over a Wide Range of Composition, Pressure, and Temperature," J. Phys. Chem. 99, 13984-13991, 1995, by S. Ryu and S. M. Hwang.

[4] "Rate Coefficient of the $O + H_2 = OH + H$ Reaction Determination via Shock Tube - Laser Absorption Spectroscopy," Chem. Phys. Lett. 242, 279-284, 1995, by S. Ryu and S. M. Hwang.

[5] "Further Investigation of Methane Oxidation," Western States Section/ Combustion Institute 1995 Fall Meeting, Stanford University, Palo Alto, California, 11/95, Paper 95F-155, 9 pgs., by A. L. Tischer, S. O. Ryu and S. M. Hwang.

[6] "Shock Tube Study of Ethylene Oxidation, Western States Section/ Combustion Institute 1995 Fall Meeting, Stanford University, Palo Alto, California, 11/95, Paper 95F-154, 9 pgs., by A. L. Tischer, S. O. Ryu and S. M. Hwang.